

## Chapter Four

### Solid Waste: How We Manage Our Material Resources

#### *Key learning points*

- The less stuff we put in the landfill, the fewer greenhouse gas emissions we'll create!
- Generally, the solid waste hierarchy of *reduce*, *reuse*, *recycle*, and *rot/compost* results in the greatest reductions of greenhouse gas emission.
- Waste reduction (also called waste prevention), including reuse of goods, is one of the easiest and most effective ways to reduce greenhouse gas emissions from garbage.
- The majority of greenhouse gas emission reductions from recycling or waste prevention results from the energy savings from avoided resource extraction and materials processing and transport.
- Recycling is mainly an energy-saving measure. By recycling, we save energy by not having to drill or mine resources, and also by avoiding the extra transportation of these mined materials.
- Organic material decomposing in a landfill creates methane and carbon dioxide. Methane is a potent greenhouse gas, nearly 21 times more powerful than carbon dioxide at trapping heat in the Earth's atmosphere and accelerating global warming.

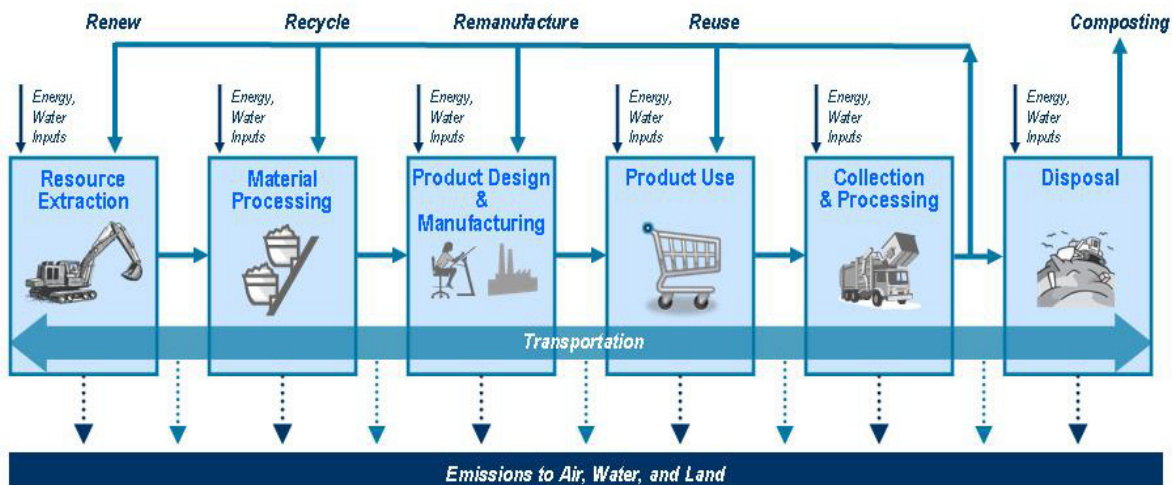
### Introduction

Waste reduction, recycling, and composting are critical strategies to prevent greenhouse gas emissions. The two primary greenhouse gases generated from solid waste activities relate to methane ( $\text{CH}_4$ ) and carbon dioxide ( $\text{CO}_2$ ). Methane gas is nearly 21 times more effective than carbon dioxide at trapping heat in the atmosphere, which accelerates global warming. Therefore, it is critical to focus on ways to reduce methane gas emissions as well as carbon dioxide emissions.

In today's consumption-based, disposable-goods society, greenhouse gases are created throughout a product's lifecycle, from mining raw materials through manufacture, transport, and disposal at the end of a product's useful life. This cycle is illustrated in Figure 4-1 which also highlights various practices which can reduce greenhouse gas emissions at different stages.

**Figure 4-1**

### Flow of Materials through the Production/Consumption Cycle



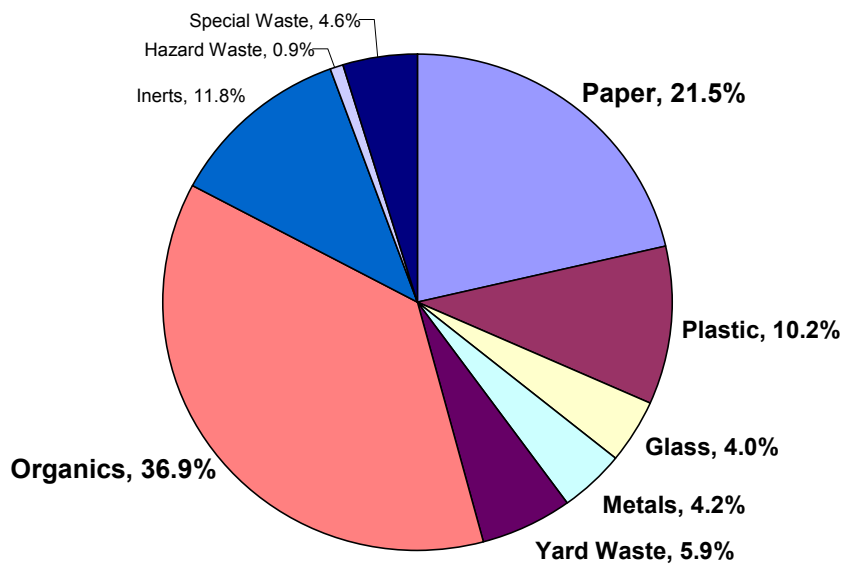
**Source:** U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. *Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices*. September 2009, p. 19.

Reducing waste is one of the easiest strategies for reducing greenhouse gas emissions. In 2005, Fremont residents and businesses sent almost 200,000 tons to the local landfill – nearly one ton (2,000 pounds) for every Fremont resident! By changing behaviors around buying, using, and disposing of the many items which are part of modern life, everyone in Fremont can have a positive impact on climate change.

The 2008 Alameda County Waste Characterization Study<sup>1</sup> revealed that over 60% of the total amount of materials that ended up in Fremont's garbage could have been recycled or composted. The percentage of specific types of materials that ended up in Fremont's garbage is shown in Figure 4.2. The categories of organics, paper, plastic, glass, metals and yard waste present the most significant opportunities for recycling and/or composting. Fremont's focus over the next decade will be on organics and paper.

**Figure 4-2**

### 2008 Waste Characterization Study – Fremont Data



**Source:** R.W.Beck. *2008 Alameda County Waste Characterization Study*. June 2009, Appendix A7, p 2.

Waste reduction, reuse, recycling, and composting are key materials management strategies in preserving natural resources, reducing energy use, and preventing greenhouse gas emissions. This chapter discusses these strategies and includes actions for the community to pursue in order to reduce greenhouse gas emissions.

<sup>1</sup> The Waste Characterization Study is an audit of the community's garbage. The contents of a random selection of garbage containers from homes and all types of businesses are inventoried into categories, such as organics, paper, glass, household hazardous waste, etc.. The information helps the City focus its efforts towards decreasing the amount of recyclable and compostable goods that are going into the garbage

### 2005 Baseline Inventory of Greenhouse Gas Emissions – Solid Waste

Fremont's 2005 Baseline Greenhouse Gas Emissions Inventory estimated that the solid waste sector generated around 3% (approximately 58,000 MTCO<sub>2</sub>e), of the community's total GHG emissions. The solid waste emissions data is an estimate of methane emissions, based on the percentage of organic material disposed in the Fremont landfill in 2005. However, at this time, there is no national or international standard for inventorying solid waste emissions.

Due to limitations of the methodology used to create Fremont's sector-based baseline inventory, the benefits of waste reduction and other materials management strategies discussed in this chapter are not readily apparent. For example, since the processing of the community's recyclables takes place outside the geographic boundary of Fremont<sup>2</sup>, the City's emissions inventory (which is limited to activities within the geographic boundaries of Fremont) will not reflect the emission reductions resulting from the diversion of these products from the landfill. Nonetheless, Fremont supports materials management strategies that achieve reductions in greenhouse gas emissions, regardless of where those emissions may be accounted for.

### The Materials Management Hierarchy

The Merriam-Webster dictionary's definition of garbage as "discarded or useless material" reflects the outdated viewpoint that everything thrown into the garbage can is useless. This definition ignores the fact that many items thrown into the garbage are *resources that can be reused, recycled or composted*. To reinforce the concept of managing materials as *resources*, not *waste*, the Climate Action Plan refers to "materials management" and "resource recovery" strategies rather than "waste management".

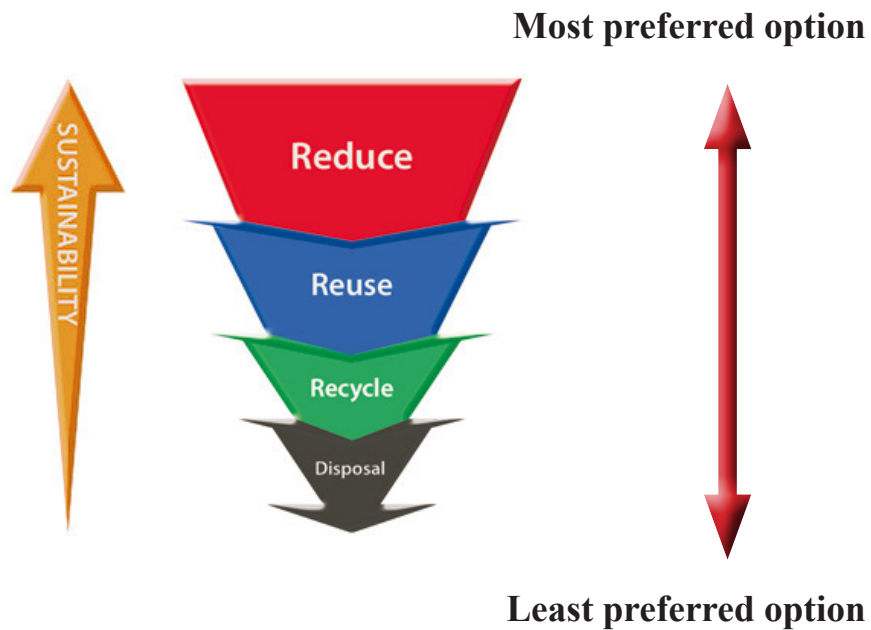
The EPA's materials management hierarchy states that certain strategies are more environmentally preferable than others. The hierarchy promotes the highest and best use of each material, and specifies the order of preference, with increasing sustainability for each strategy as graphically represented in Figure 4-3. The most preferable materials management strategy is *source reduction* or *waste prevention*, followed by *reuse* of existing items, *recycling*, *rot/compost*, and as the last resort, *disposal*. Each strategy is discussed in greater detail, below.

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<sup>2</sup> The community's recyclables are trucked to and sorted at the Fremont Recycling Transfer Station. The actual recycling and remanufacturing into new products occurs both out of state and overseas.

Figure 4-3

## The Materials Management Hierarchy



**Source:** West Coast Climate and Materials Management Forum

## Source Reduction/Waste Prevention

*Source reduction or waste prevention* describes choices and actions that prevent the creation of waste. Changing the design, manufacture, and/or use of materials and products to reduce what gets thrown away is the most effective approach to reducing greenhouse gas emissions because *emissions which result from all phases of a material's or product's lifecycle are avoided*. Other benefits include:

- ≈ Conserving natural resources
- ≈ Expanding the useful life of existing landfills
- ≈ Avoiding the costs of purchasing new products.

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Some examples of effective source reduction strategies which can be easily accomplished include:

- Purchasing goods in bulk instead of in individual packages
- Avoiding single-use or disposable products
- Making two-sided copies of documents
- Composting organic materials on site
- Reducing unnecessary packaging from both manufactured and food products.

### Reuse

*Reuse* is **the act of using a material or object more than once, either for the purpose for which it was originally intended or for another purpose, without making significant alterations to its physical form.** *Reuse* differs from *recycling* in that reuse does not change the physical form of an object. Reusing an object is more effective at reducing greenhouse gas emissions than recycling, because it uses less energy and fewer resources. Reuse can also be considered a form of waste prevention, since the object is not discarded as it might otherwise have been. Ideally, a product would be designed and manufactured with the express intent to be durable and adaptable enough for reuse.

The expression ‘One person’s trash is another person’s treasure’ may best capture the spirit of the ‘reuse’ approach to materials management. Some examples of reuse practices include:

- Reusing shopping bags and beverage mugs
- Purchasing clothing and other goods secondhand
- Building a construction project with previously-used materials
- Using the California Materials Exchange program to acquire or dispose of materials

There is one notable exception to the maxim that reuse is always preferable to recycling. Because of the significant improvements in the energy efficiency of modern appliances (such as refrigerators, clothes washers and dryers, televisions, and heating and air conditioning systems) it is preferable to replace, rather than repair, older models of these products.

## Recycle

*Recycling* is **the process of using materials to manufacture a new product, which then has its own distribution and consumption cycle.** By definition, the recycling process involves altering the physical form of the material being recycled. For most materials, recycling represents a significant opportunity to reduce greenhouse emissions, by reducing energy-related greenhouse gas emissions in the manufacturing process and avoiding emissions from other steps in the materials management cycle.



Recycling is essentially an energy-saving measure. Some argue that transportation of recyclable material to the processing facility could negate any greenhouse gas emissions saved by recycling. In fact, recyclable materials would have to travel tens to thousands of miles before reaching the break-even point, where the emissions generated by the transportation outweigh the energy saved from using recycled material to create new products.<sup>3</sup>

Some examples of energy savings resulting from recycling when compared to making new materials are:

- ≈ Recycling an aluminum can saves 95% of the energy needed to make a can from raw materials.
- ≈ Recycling plastic saves 70% of the energy needed to make new plastic.
- ≈ Recycling paper saves 40% of the energy needed to create new paper. Recycling a ton (2,000 pounds) of paper saves 17 trees.

<sup>3</sup> ICLEI – Local Governments for Sustainability. *ICLEI Resource Guide - Recycling and Solid Waste Management*, March 2008. Appendix I, p. 51.



- ♻ Recycling a glass bottle saves 30% of the energy needed to make a bottle from raw materials.

*CalRecycle* (the State authority on recycling, waste reduction, and product reuse, officially known as the Department of Resources Recycling and Recovery), notes that the *full benefits of recycling are only achieved when individuals, businesses and organizations purchase products made from postconsumer waste.*

### Compost

*Composting* mimics the biological decomposition of organic materials such as paper, yard trimmings, wood, food scraps and food-soiled paper into a soil amendment commonly called *compost*. In the anaerobic<sup>4</sup> environment of a landfill, these organic materials produce significant quantities of landfill gas, which consists of about 50% methane and 50% carbon dioxide. Food waste and food soiled paper generate more methane than any other material in the landfill. When composted in an aerobic environment (with oxygen present), such as a backyard compost bin, organic materials do not produce any significant amount of methane. StopWaste.Org notes that composting one ton of food waste reduces greenhouse gas emissions by one ton.



By keeping organic materials out of the landfill and preempting the anaerobic decomposition process which occurs in the landfill, the community can prevent the methane emissions which would otherwise occur. On-site composting (such as backyard composting) achieves the greatest cumulative emission reduction benefits, since no additional energy is used to collect, transport and process the compostable materials. In addition, mixing compost into soil replenishes soil nutrients and reduces the need for irrigation and for chemical fertilizers, pesticides, and additives, which are often petroleum-based. Equally important, adding compost to soil greatly increases the amount of carbon sequestered, as soil holds more carbon than plants. Figure 4-4 illustrates the cycle of composting just described.

<sup>4</sup> “Anaerobic” means “without oxygen.”



**Figure 4-4:**  
**The Cycle of Composting**



**Source:** Image created by Lori Marra, City of Fremont Environmental Services Division.

Although onsite composting is the optimal approach to handling food scraps and other organic materials, Fremont residents and businesses can place these items in their green organics bin for off-site composting. Currently, approximately 30% of Fremont households and 55 businesses participate in the food scrap composting program. Each additional household and business that places food scraps and food-soiled paper in the green bin, thereby keeping these materials out of the landfill and preempting the creation of greenhouse gases in the landfill's anaerobic environment, will help the community make progress towards achieving its greenhouse gas emission reduction goal.

### Disposal

*Disposal* is the least desirable materials management strategy, and is therefore at the bottom of the solid waste hierarchy. If a product is not reused, recycled or composted at the end of its useful life, it goes to the landfill. Once items thrown in the garbage are on their way to the landfill, there is almost no chance to recover those that could be reused, recycled, or composted. It is a common misconception that recyclable and compostable materials are taken out of garbage bins before they are disposed in the landfill. This does not occur with Fremont's waste.

### Other Materials Management Strategies: *Upcycling, Designing out Waste, Extended Producer Responsibility, and Zero Waste*

The introduction of concepts such as *upcycling* and *designing out waste* reflects new ways of thinking about material use and product design, manufacture, and reuse. *Upcycling* is a term used by William McDonough and Michael Braungart in their 2002 book *Cradle to Cradle: Remaking the Way We Make Things*. Upcycling refers to a process that either maintains or improves the quality of materials involved in the upcycling effort. Examples include making purses out of juice packages, new sweaters out of pieces of old, damaged sweaters, and jewelry out of compact discs. Figure 4-5 illustrates the broad concept of a “cradle to cradle” system.

Figure 4-5

#### Tomorrow's “Cradle to Cradle” System



**Source:** California Product Stewardship Council

*Designing out waste* seeks to reduce waste by intentionally planning for how a product could be recycled, reused or upcycled at the end of its life **before** the product is made. This approach to consumer goods could create an *endless cycle*

of resource reuse, ultimately resulting in zero waste in landfills. As the waste management industry continues to explore new systems and technologies for keeping waste out of landfills and discovering new uses for solid waste, the private sector continues to explore new ways of thinking about and creating consumer goods.

*Extended producer responsibility* (EPR) is another approach to materials management. EPR places shared responsibility for end-of-life product management on the producers, and all entities involved in the product lifecycle, instead of the general public. Example of EPR strategies include buy-back and corporate recycling programs (other than municipal programs) that shift the responsibility for dealing with waste from government to private industry. Successful EPR programs will also result in reductions in product packaging which ultimately means fewer greenhouse gas emissions.

*Zero Waste* is an approach to materials management that seeks to eliminate waste entirely. The Zero Waste International Alliance (zwia.org) states: “Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health.”

### The Regulatory Context

Regulation of solid waste occurs at the state, county, and local levels. California’s first significant regulation addressing the disposal of solid waste was the *Solid Waste Management and Resource Recovery Act of 1972*. The Act created the Solid Waste Management Board (later renamed the “California Integrated Waste Management Board”) and established the Board’s authority over the handling, disposal and reclamation of solid waste. In the intervening years, both the State and Alameda County have adopted additional solid waste-related legislation. Some examples which address specific products include the following:

- ≈ **AB 2020 (1986):** *The Bottle Bill*, which created an incentive for recycling by establishing redemption values for bottles and cans.
- ≈ **AB 1305 (1989):** *The Recycled Newsprint Act*, which requires newsprint publishers to use increasing levels of recycled content newsprint.
- ≈ **SB 20 (2004):** *The Electronic Waste Recycling Act*, the nation’s first e-waste recycling law.

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- **AB 2449 (2006):** Establishes a program allowing consumers to return plastic shopping bags to grocery stores, to encourage the use of reusable bags by consumers and retailers and to reduce the consumption of single-use bags.
- **Alameda County Landfill Ban (2009):** Bans the disposal of plant debris in county landfills by organizations, businesses or individuals who generate significant amounts of plant debris and requires the debris to be separated from all garbage and deposited in the disposal facility's designated "clean green" area or a designated "organics" cart or collection bin.
- **Alameda County Mandatory Commercial Recycling Ordinance (2012):** This ordinance, effective July 1, 2012, requires businesses, multifamily residences and self-haulers to recycle materials such as cardboard, newspaper, white paper, mixed recyclable paper, recyclable food and beverage glass containers, aluminum and steel food and beverage cans, and HDPE and PET (two common forms of plastic) bottles. The ordinance is intended to divert these materials from disposal in landfills.
- **Alameda County Single Use Bag Ban (2012):** On January 25, 2012, the Alameda County Waste Management Authority adopted the single-use bag ordinance. The ordinance, effective January 1, 2013, bans single-use bags at check out at retailers selling packaged food countywide. Recycled content paper or reusable bags may be provided but only if the retailer charges a minimum price of \$0.10 per bag. the purpose of the ordinance is to reduce the number of bags going to landfill and decrease the problems caused by plastic bags at recycling processing centers and landfills.

In addition to these materials-specific regulations, other regulations addressing solid waste include the following:

### ***California Integrated Waste Management Act of 1989 (AB 939 and SB 1322)***

The California Integrated Waste Management Act grew out of concerns about increasing waste streams and decreasing landfill capacity. The Act established quantitative diversion goals of waste from landfills for California's cities and counties of 25 percent by 1995, and 50 percent diversion by 2000. The Act also created the California Integrated Waste Management Board (CIWMB)<sup>5</sup>. A key component of the Act was the establishment of the priority hierarchy for materials management practices consistent with the one described previously in this chapter.

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<sup>5</sup> The CIWMB was dissolved in 2010 and its duties and responsibilities transferred to the *California Department of Resources Recovery and Recycling (CalRecycle)*.

To ensure compliance with State law, a Joint Powers Authority agreement was entered into by Alameda County, two sanitary districts within the county, and all incorporated cities in the county, including the City of Fremont. This agreement created the Alameda County Waste Management Authority (now known as *StopWaste.Org*) and the Alameda County Recycling Board. *StopWaste.Org* is responsible for developing and implementing a Countywide Integrated Waste Management Plan (CoIWMP). This plan includes a Source Reduction and Recycling Element, a Nondisposal Facility Element and a Household Hazardous Waste Element.

At the local level, Fremont adopted AB 939's goals relating to diversion of materials from the landfill through source reduction, reuse, recycling and composting. Upon reaching the 50% diversion goal, in 1999 the City Council increased the goal to diversion of 75% of solid waste generated in Fremont, consistent with the countywide goal established by Alameda County's Measure D<sup>6</sup>. In the intervening years, the City has made continued progress, reaching 71% diversion in 2009, and at least 74% diversion in 2010.

### ***Per Capita Disposal Measurement System, Chapter 343, Statutes of 2008 (SB 1016, Wiggins)***

This legislation changed the measurement system for assessing jurisdictions' performance in keeping waste out of landfills from the 'percentage diverted' system to a 'per capita disposal measurement system'. SB 1016 builds on AB 939 compliance requirements, as opposed to superceding them. The per capita disposal rate indicator uses two factors: a jurisdiction's population (or in some cases employment) and its disposal as reported by disposal facilities. This approach is intended to allow jurisdictions to focus time and resources on successful program implementation by eliminating complex calculations and simplifying goal measurement.

### ***The Global Warming Solutions Act of 2006 (AB 32) and the California Climate Change Scoping Plan***

The AB 32 Scoping Plan includes three strategies in the recycling and solid waste sector. Two of the strategies seek to increase the efficiency of landfill methane capture, thereby preventing release of the methane into the atmosphere. The third strategy has the ultimate goal of zero waste delivered to the State's landfills, through methods such as commercial recycling, composting, anaerobic digestion, extended producer responsibility, and environmentally preferable purchasing.

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<sup>6</sup> Measure D, "Alameda County Waste Reduction and Recycling Initiative Charter Amendment," was approved by 63% of Alameda County voters in November, 1990. The requirements and prohibitions in the initiative apply to the County of Alameda, as an entity, and to all unincorporated areas within the county.

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The 2008 Statewide Waste Characterization data revealed that the commercial sector generates around 50% of California's solid waste. In spite of the significant recycling that already occurs, there is considerable opportunity to achieve increased greenhouse gas emission reductions in the commercial sector. Since the commercial sector is not directly subject to the requirements of AB 939, the Scoping Plan identified commercial recycling as a discrete early implementation measure. Adoption of the proposed regulations was scheduled for October 2011. With the passage of AB 341 in 2011, the California Department of Resources Recycling and Recovery incorporated the work done with the California Air Resources Board for the Mandatory Commercial Recycling Measure into the Mandatory Commercial Recycling Regulation. California jurisdictions are required to implement the Mandatory Commercial Recycling Regulation effective July 1, 2012.

### ***StopWaste.Org (Alameda County) Strategic Workplan for 2020 (2010)***

The Strategic Workplan provides policy guidance and establishes priorities for staff's work on implementing the CoIWMP. The Workplan seeks to achieve the following goals by the year 2020:

- No more than 10% of the material deposited in landfills is readily recyclable or compostable.
- No more than 10% of the material placed in recycling or composting containers is garbage that is not readily recyclable or compostable.

Effective July 1, 2013, this new type of diversion goal directly measures the results of people's behaviors around throwing things away. The ultimate goal is to change behaviors which result in landfilling materials which don't belong there. As stated earlier in this chapter, Fremont's 2008 Waste Characterization Study revealed that about 60% of materials managed as garbage were actually readily recyclable or compostable. The Strategic Workplan proposes to reduce that percentage to no more than 10% by 2020.

## City of Fremont Materials Management Policies and Regulations

The following materials management policies and regulations support the reduction of greenhouse gas emissions and promote responsible purchasing, use and management of goods.

- ≈ ***Residential Recycling and Organics Collection:*** Residents in single-family homes are required to subscribe to recycling and organics collection service provided by Allied Waste Services, the City's solid waste service provider. Residents in multi-family housing are required to subscribe to recycling collection service. Since 2003, residents in single-family homes have been able to add food scraps and food-soiled paper to their green organics bin.
- ≈ ***Environmentally Preferable Purchasing Policy (Administrative Regulation 3.10):*** This 2006 internal City of Fremont policy promotes purchasing products that are durable, reusable, and long lasting; products that include recycled content, and products that have reduced toxicities.
- ≈ ***LEED™ Certification for new City of Fremont buildings (Sustainability Policy):*** In 2006, the City Council adopted a resolution which requires new City of Fremont buildings over 10,000 square feet in size to obtain Leadership in Energy and Environmental Design (LEED™) certification at the Silver level or higher. The LEED™ rating system includes a rating category which addresses issues such as construction waste management, building and materials reuse, and use of recycled content materials.
- ≈ ***Bay-Friendly Landscaping Requirements:*** In 2009, the City Council adopted a resolution requiring use of Bay-Friendly Landscaping principles, which address design, construction and maintenance for public sector and private sector landscape projects larger than 10,000 square feet. Some of the principles pertaining to materials management include turning plant debris onsite into mulch and/or compost, and using salvaged items and recycled content materials in the landscape design.
- ≈ ***Construction and Demolition Debris Recycling Ordinance:*** Effective in 2009, the Council adopted this ordinance to decrease materials sent to landfills by targeting all demolition projects and larger construction projects (as defined by permit valuation). All asphalt and concrete, and at least 50% of the remaining debris from the project must be recycled.



- Expanded Polystyrene Disposable Food Service Ware Ordinance: The City Council adopted this ordinance, effective January 1, 2011, which requires the use of compostable or recyclable food service ware for takeout containers in place of expanded polystyrene foam (or styrofoam™) takeout containers, which are now prohibited.

### **Actions for Reducing Greenhouse Gas Emissions**

Fremont's solid waste priorities are aligned with those of the Alameda County Waste Management Authority (StopWaste.Org), the State's AB 32 Scoping Plan, and the U.S. Environmental Protection Agency's West Coast Climate and Materials Management Forum. The EPA Forum is a partnership of western cities and states that are developing and sharing ways to integrate lifecycle materials management policies and practices into climate action plans.

Fremont's Climate Action Plan aims to reduce greenhouse gas emissions from the solid waste sector by:

- Expanding outreach and education into the community
- Implementing regulatory mandates to maximize compliance
- Increasing voluntary actions
- Advocating for beneficial legislation
- Maintaining active involvement in collaborative efforts and partnerships.

Staff will collaborate with stakeholders when undertaking work on actions in this chapter, especially for those additions which may result in new local regulations.

Meeting the City's waste reduction and greenhouse gas reduction goals will require additional investment in the materials management infrastructure as well as changes in behavior throughout the community. Specific ideas for actions which individuals, businesses and organizations can take to help reduce greenhouse gas emissions from solid waste can be found in the section titled "What You Can Do!"

## Emission Reduction Actions and Implementation Timeline

**GOAL:** Reductions in greenhouse gas emissions achieved by decreasing the amount of solid waste sent to landfills through increased voluntary and mandatory recycling, composting, and other materials management strategies, and from methane gas capture and recovery.

### Short-term actions: 1-3 years from Plan adoption

#### *Advocate*

- SW-A1** Support Extended Producer Responsibility legislation and processes.
- SW-A2** Support legislation that reduces waste and litter from single-use disposable items.
- SW-A3** Increase the number of Certified Green Businesses each year.
- SW-A4** Encourage large waste-generating businesses to get a free waste audit from the City of Fremont.
- SW-A5** Increase the amount of construction and demolition debris recycled from private-sector projects.
- SW-A6** Develop policies and support new technologies to improve waste reduction, recycling and resource recovery programs for materials.

#### *Collaborate/participate*

- SW-C1** Work with Waste Management, Inc. to capture and recover methane gas to use as an energy source at the Tri-Cities Recycling and Disposal Facility and the Altamont Landfill and Resource Recovery Facility.
- SW-C2** Partner with California Youth Energy Services staff to provide information on recycling and composting that can be distributed to residents when CYES performs their energy audits.

### *Regulate*

- SW-R1** Implement commercial recycling by July 1, 2012, as required by the State of California and Alameda County.
- SW-R2** Comply with the California Green Building Code, effective January 1, 2011, which requires all new residential buildings to recycle 65% of the material generated from the project.
- SW-R3** Require recycling as a condition of permit issuance for special events that must secure city-issued permits.

### **Medium-term actions: 3-5 years from Plan adoption**

### *Advocate*

- SW-A7** Increase recovery of organic materials from the commercial and residential sectors to 75%.
- SW-A8** Increase recovery of recyclable materials from the commercial and residential sectors to 75%.

### **Long-term actions: 5-10 years from Plan adoption**

### *Advocate*

- SW-A9** Increase recovery of organic materials from the commercial and residential sectors to 90%.
- SW-A10** Increase recovery of recyclable materials from the commercial and residential sectors to 90%.

